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Translation

PATENT COOPERATION TREATY

PCT/EP2003/014103

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2002P20698WO	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP2003/014103	International filing date (*day/month/year*) 12 décembre 2003 (12.12.2003)	Priority date (*day/month/year*) 20 décembre 2002 (20.12.2002)
International Patent Classification (IPC) or national classification and IPC G01L 23/10		
Applicant SIEMENS VDO AUTOMOTIVE		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand 19 juillet 2004 (19.07.2004)	Date of completion of this report 17 May 2005 (17.05.2005)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP2003/014103

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed

☒ the description:

pages 1-7, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the claims:

pages 1-6, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the drawings:

pages 1-2, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 03/14103

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-6	YES
	Claims		NO
Inventive step (IS)	Claims	2-6	YES
	Claims	1	NO
Industrial applicability (IA)	Claims	1-6	YES
	Claims		NO

2. Citations and explanations

Reference is made to the following documents:

D1: EP A 0 510 515

D2: US A 5 329 809

1. The present application fails to meet the requirements of PCT Article 33(1), since the subject matter of claim 1 does not involve an inventive step as defined by PCT Article 33(3).

1.1 D2, which is considered to be the prior art closest to the subject matter of claim 1, describes (the references between parentheses apply to said document):

An apparatus for detecting the pressure in a combustion chamber of an internal combustion engine including:

- a functional unit ("spark plug", cf. column 2, line 19) useful to the functioning of the engine, said functional unit passing through the wall of a cylinder head ("engine head", cf. column 2, line 19), inside a port ("access well", column 2, line 18) having an axis ("axial conduit", column 2, line 51) and provided in said wall; said functional unit communicating with a combustion

chamber ("engine cylinder", column 2, line 16) of the engine by means of said port, and being intended to be mechanically coupled to the cylinder head while being capable of moving axially relative to the cylinder head when subjected to the pressure prevailing in the combustion chamber;

- and a sensor (40) for detecting the combustion pressure in said chamber, which sensor is axially compressed by a bearing surface (48), which is stationary relative to the cylinder head, against a portion (61) linked to the functional unit, regardless of the pressure inside the combustion chamber, so that the sensor detects the movement of the functional unit when pressure variations occur in the combustion chamber.

Consequently, the subject matter of claim 1 differs from said known D2 in that:
an additional means, fixedly linked to said cylinder head, provides a mechanical coupling between the functional unit and the cylinder head, and at least a portion of said additional means applies a pressure on the sensor by defining said bearing surface, which is stationary relative to the cylinder head when the functional unit mounted on the cylinder head is in an operational state, ready to be subjected to the pressure in the combustion chamber.

1.2 The problem that the present invention is intended to solve can be considered to be that of:

- dispensing with the need to drill the cylinder head;
- attaching the functional unit to the cylinder

head.

1.3 The solution proposed in claim 1 of the present application is not considered inventive (PCT Article 33(3)) for the following reasons:

D1 describes (the references between parentheses apply to said document) the installation of a pressure sensor in an internal combustion engine, such that:

- an additional means (5), fixedly linked to a cylinder head, provides a mechanical coupling between the functional unit (6) and the cylinder head (1);

and

- at least a portion of said additional means (5) applies a pressure to the sensor (3) by defining said bearing surface, which is stationary relative to the cylinder head (1) when the functional unit (6) mounted on the cylinder head (1) is in an operational state, ready to be subjected to the pressure in the combustion chamber.

The solution proposed in D1 dispenses with the need to drill the cylinder head and provides for the attachment of the functional unit to the cylinder head.

2. Taking the documents cited in the international search report into consideration, the features of dependent claims 2 to 6 comply, as such, with the PCT requirements of novelty and inventive step.